United States
Environmental Protection
Agency

Pollution Prevention
and Toxics
(7407)

November 1994
EPA 749-F-95-014

OPPT Chemical Fact Sheets

Methyl Methacrylate Fact Sheet
(CAS No. 80-62-6)

Chemicals can be released to the environment as a result of their manufacture, processing, and use. EPA has developed information summaries on selected chemicals to describe how you might be exposed to these chemicals, how exposure to them might affect you and the environment, what happens to them in the environment, who regulates them, and whom to contact for additional information. EPA is committed to reducing environmental releases of chemicals through source reduction and other practices that reduce creation of pollutants.

WHAT IS METHYL METHACRYLATE, HOW IS IT USED, AND HOW MIGHT I BE EXPOSED?

Methyl methacrylate is a flammable liquid. It does not occur naturally. It is produced in very large amounts (estimated to be approximately 1 billion pounds in 1992) by three companies in the United States. The largest users of methyl methacrylate are companies that make acrylic plastics and resins for sheeting and molding material, molding and powder resins, and emulsion polymers. Companies also use methyl methacrylate in protective surface coatings such as exterior latex housepaint. Small amounts of methyl methacrylate are used in dental restorations, adhesive cements, and surgical bone implants.

Exposure to methyl methacrylate can occur in the workplace or in the environment following releases to air, water, land, or groundwater. Exposure can also occur when people use certain exterior latex housepaints, adhesives, inks, and floor polishes. Methyl methacrylate enters the body when people breathe air or consume water or food contaminated with methyl methacrylate. It can also be absorbed through skin contact. Methyl methacrylate does not remain in the body due to its breakdown and removal.

WHAT HAPPENS TO METHYL METHACRYLATE IN THE ENVIRONMENT?

Methyl methacrylate evaporates when exposed to air. It dissolves when mixed with water. Most releases of methyl methacrylate to the environment are to air. Methyl methacrylate can also evaporate from water or soil exposed to air. Once in air, it breaks down to other chemicals. Microorganisms that live in water and in soil can also break down methyl methacrylate. Because it is a liquid that does not bind well to soil, methyl methacrylate that makes its way into the ground can move through the ground and enter groundwater. Plants and animals are not likely to store methyl methacrylate.

HOW DOES METHYL METHACRYLATE AFFECT HUMAN HEALTH AND THE ENVIRONMENT?

Effects of methyl methacrylate on human health and the environment depend on how much methyl methacrylate is present and the length and frequency of exposure. Effects also depend on the health of a person or the condition of the environment when exposure occurs.

Breathing methyl methacrylate for short periods of time irritates the nose and throat. It also causes headaches and fatigue. Methyl methacrylate is a potent skin sensitizer in laboratory animals. These effects are not likely to occur at levels of methyl methacrylate that are normally found in the environment.

Human health effects associated with breathing or otherwise consuming small amounts of methyl methacrylate over long periods of time are not known. Workers repeatedly exposed to methyl methacrylate have reported allergic reactions, pain in fingers and toes, and fatigue. Laboratory studies show that repeated exposure to large amounts of methyl methacrylate in air damages the lining of the nose and adversely affects the lungs, the liver, the spleen, and the bone marrow of animals. Studies also show that repeated oral exposure to large amounts of methyl methacrylate causes stomach ulcers in animals.

Methyl methacrylate has low toxicity to aquatic life. By itself it is not likely to cause environmental harm at levels normally found in the environment. Methyl methacrylate can contribute to the formation of photochemical smog when it reacts with other volatile substances in air.

WHAT EPA OFFICES OR OTHER FEDERAL AGENCIES OR OTHER GROUPS CAN I CONTACT FOR ADDITIONAL INFORMATION ON METHYL METHACRYLATE?

EPA OFFICE	LAW	PHONE NUMBER
Pollution Prevention & Toxics	Emergency Planning and Community Right-to-Know Act (EPCRA) (§ 313/ Toxics Release Inventory data)	(202) 260-1531
	Toxic Substances Control Act (TSCA)	(202) 554-1404
Air	Clean Air Act (§111, §112B)	(919) 541-0888
Solid Waste & Emergency Response	Resource Conservation and Recovery Act (RCRA)	(800) 535-0202
	Comprehensive Environmental Response, Compensation, and Liability Act (Superfund)	
Water	Clean Water Act	(202) 260-7588

For general information on reducing or eliminating industrial pollutants through technology transfer, education, and public awareness, contact the Pollution Prevention Information Clearinghouse, (202) 260-1023.

OTHER FEDERAL AGENCY/DEPARTMENT OR GROUP	PHONE NUMBER
Agency for Toxic Substances and Disease Registry	(404) 639-6000
American Conference of Governmental Industrial Hygienists	(513) 742-2020
Consumer Product Safety Commission	(301) 504-0994
Food and Drug Administration	(301) 443-3170
National Institute for Occupational Safety & Health	(800) 356-4674
National Institute of Environmental Health Sciences (EnviroHealth Clearinghouse)	(800) 643-4794
Occupational Safety & Health Administration *(Check local phone book for phone number under Department of Labor)*	

The Support Document for this and other OPPT Chemical Fact Sheets can be found on the Internet at:
http://www.epa.gov/chemfact